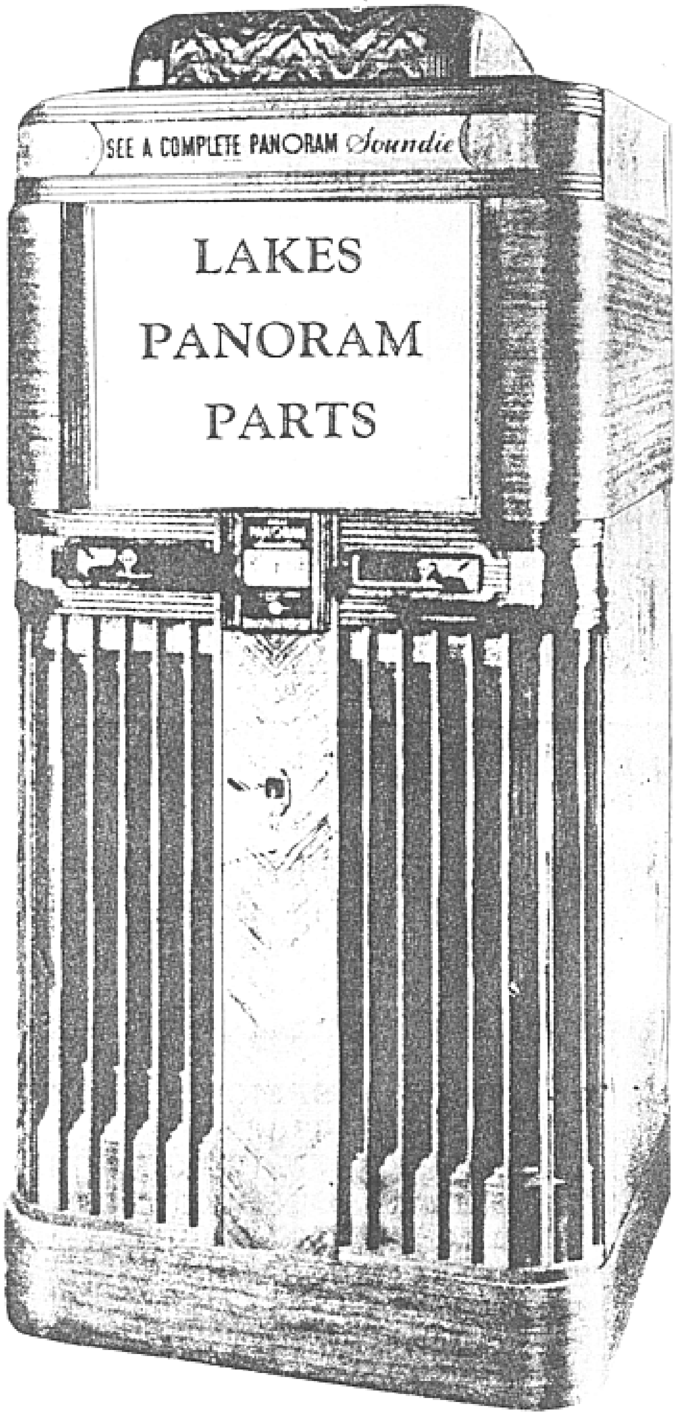
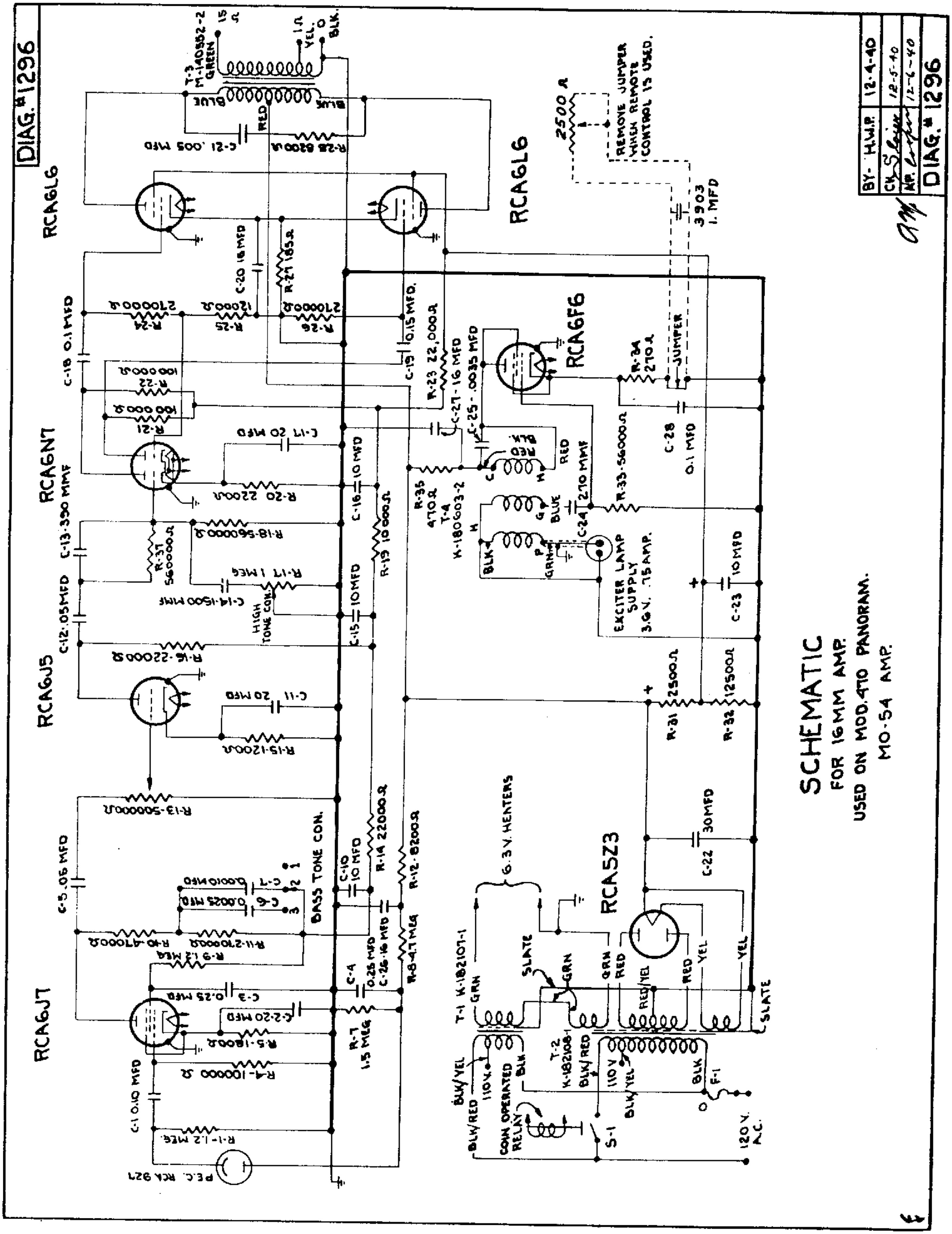
SERVICE MANUAL

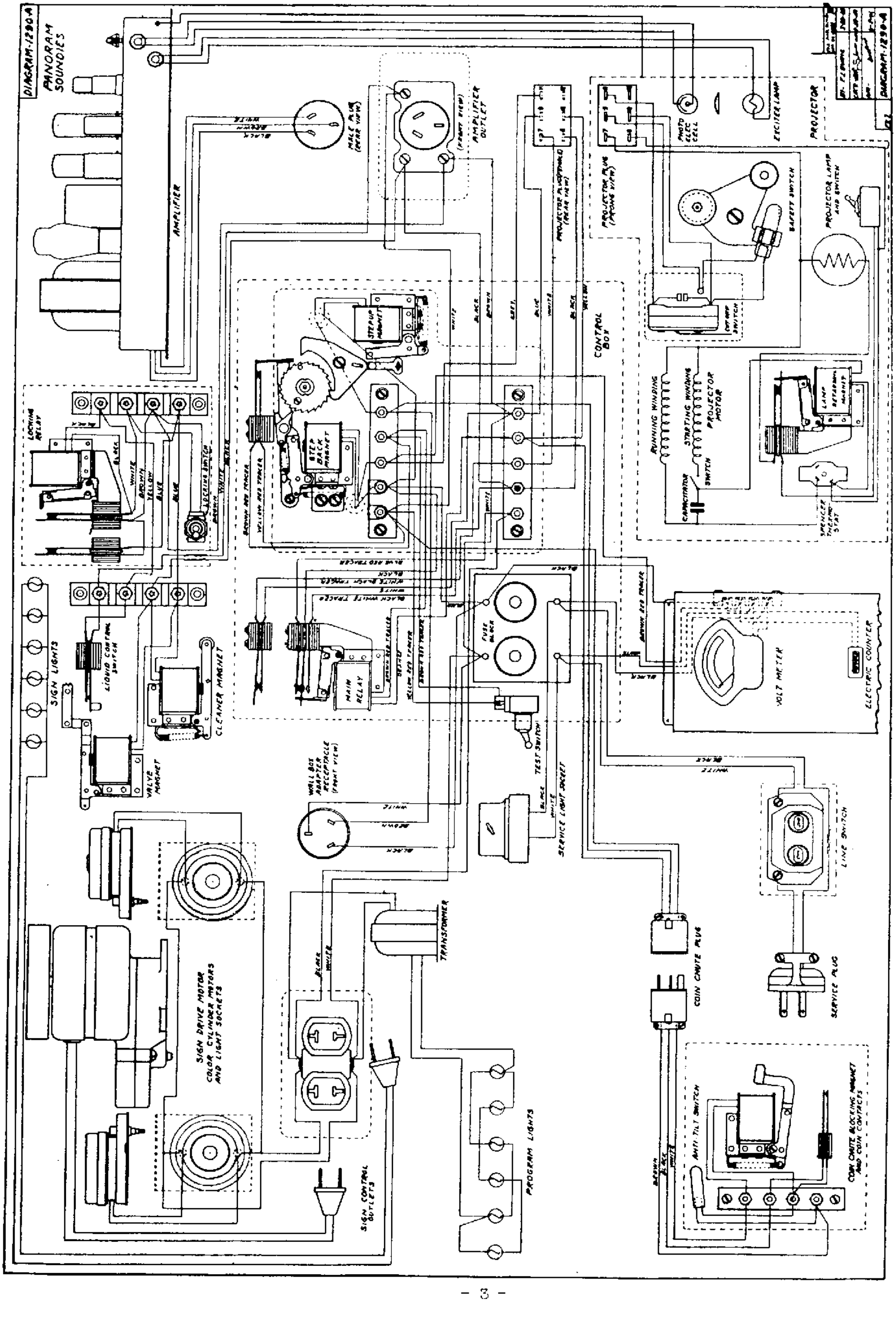


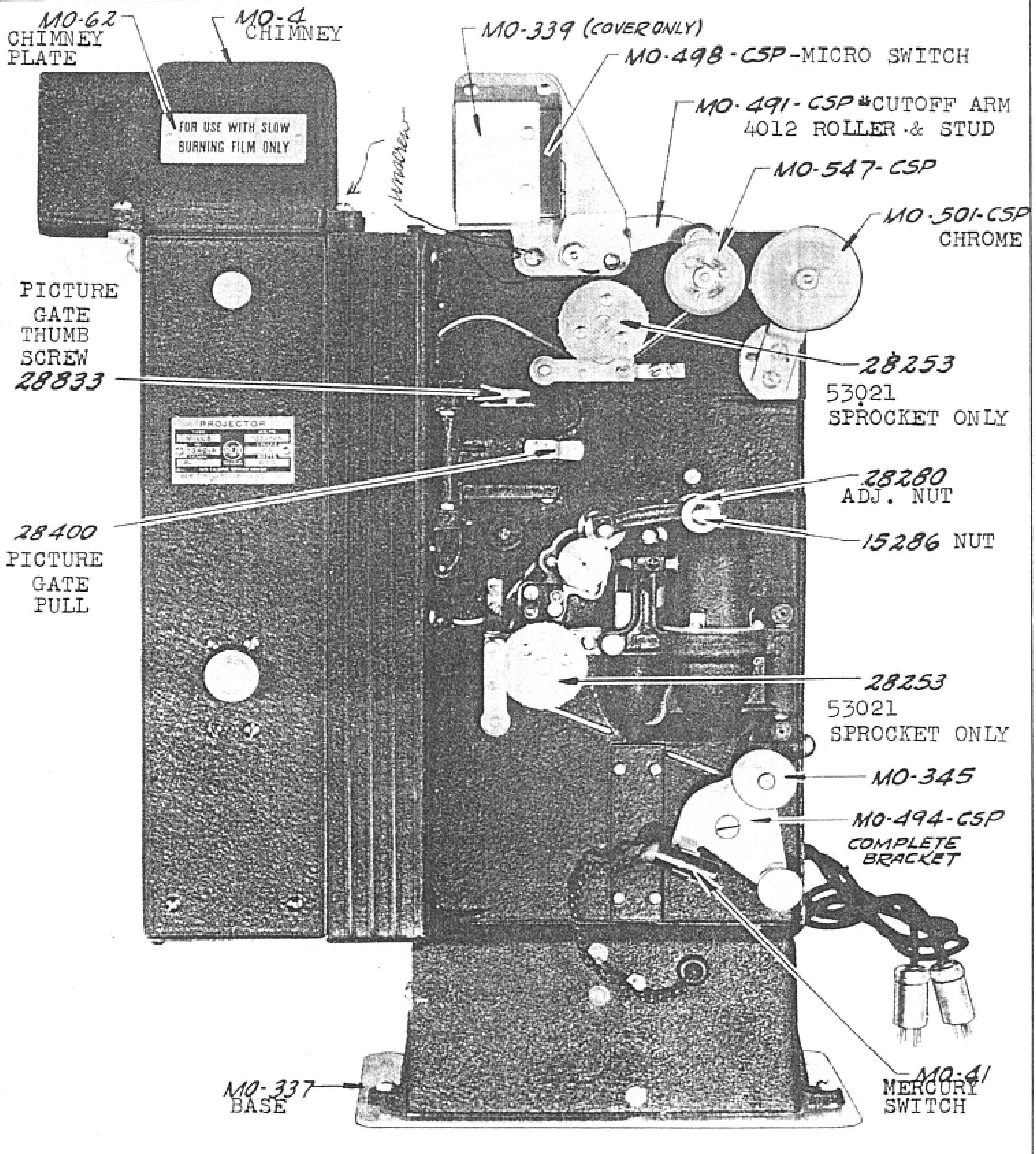
FOR THE MILLS

PANORAM

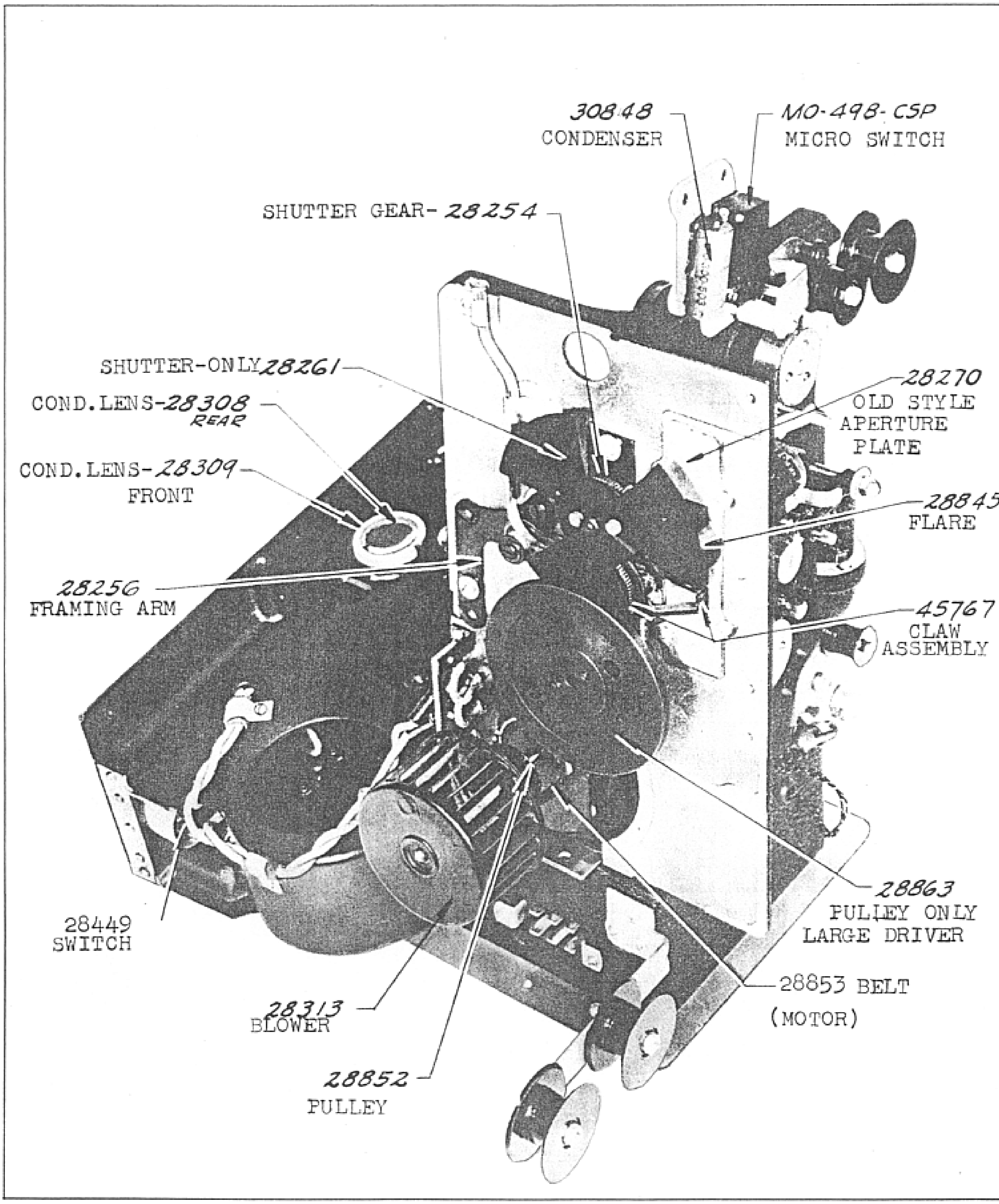
DESCRIPTION	TROUBLE CHECK CHART POSSIBLE CAUSE	REMEDY
1. Loses both loops. .	Reel playout drive belt loose or broken. Tight film on continuous reel. Reel playout bearing and shaft frozen. Reel playout ball bearing bad. Neoprene band greasy or slipping Upper feed sprocket shoe out of adjustment	Replace or adjust belt. Remove 2 turns from inside diameter. Repair or replace. Replace
2. Loses lower loop . .	Claw dirty Bad sprocket hole. Film binding in gate Bad splices. Tight film	Clean claw. Remove and splice film Check for thick splices. Check guide springs. Repair film Remove 2 turns from inside diameter.
3. Loses upper loop . .	Sound drum bearings too free (at end of subject). Pressure roller too much tension Film sticky and adhering to sound drum (when machine shuts off)	Thread film under 2 small bakelite rollers located between sound drum and takeup sprocket. Tension on spring should be 14 oz. Clean film with solution.
4. Safety switch cuts out	Broken film. Film too loose on reel Sticky film played out too fast by playout pulley. Film binding in reel	Repair break Wind one or two turns on outside diameter Move idler roller to next hole up on continuous reel. Clean film with solution.
5. Projector noisy . . .	Claw adjustment too wide Claw hitting aperture plate and shoe Shutter bearing. Projector belt frayed.	Adjust claw. Adjust "in and out" cam. Replace shutter bearing. Replace belt.
6. Tears sprocket hole .	See #1 above See #2 above	
7. Travel Ghost. . . .	Shutter out of adjustment.	
8. Chatter in machine. .	Check all solenoid magnets	Align armature arm with field core.
9. Picture motion unsteady. .	Not properly threaded. Side pressure springs on aperture plate weak.	Check loops for proper length. Replace springs. Groove in aperture plate or claw.
10. Picture Indistinct. .	Lens dirty Condenser lens dirty Mirror dirty or silver impaired. Projector lamp Low voltage.	Clean. Clean. Clean or replace. Replace.
11. Film scratched. . . .	Film shoe, emulsion side Playout pulley (Neoprene band) Cut off switch guide roller Sound drum roller. Aperture plate Emulsion hardened on film gate shoe. Emulsion hardened on aperture plate. Cleaner tubes. Cleaner felts. Dirty and sluggish guide rollers	Clean or replace. Clean, Sluggish, clean or replace. Clean. Clean or replace. Clean, Clean, Bend away from film Remove from holders. Clean,
12. Picture, no sound . .	Exciter lamp burned out. Photo electric cell. Amplifier tubes. Transformer. Oscillating coil	Replace. Replace. Replace. Replace. Replace.
13. Sound, no picture . .	Projector lamp burned out. Lamp retarder relay. Lamp switch.	Replace. Check contact points. Check if off.
14. Low sound.	Amplifier tubes. Low voltage. Amplifier condenser or resistors Reflector mirror out of place or broken. Optical unit out of adjustment	Replace. See Page 1 Replace. Replace Adjust
15. Tone wavy or "wows"	Sound drum shaft or bearings Film Pressure roller, wrong tension Pressure roller, dirt accumulated.	Replace. See Para., Neoprene band. Clean film. Adjust or replace spring. Clean,
16. Tone distorted . . .	Audio coupling condensers. Amplifier tubes. Output condenser	Replace. Replace. Replace.
17. Sound intermittent .	Exciter lamp plug, and socket. 6F6 tube Oscillating coil	Check connections. Replace. Replace.
18. High "hum heard" . .	Amplifier, open grid - open filter Grid and plate leads too close to A.C. "Neon lights" in location.	Replace. Reroute wires. . . . .
19. Tone noisy	Tubes. Switches Volume control Loose connections in amplifier Loose connections in socket and plugs.	Replace. Replace or repair. Replace or repair. Repair. Repair
20. Microphonic.	Amplifier tubes 6J7 - 6J5 - 6F6, Audio oscillator Remote volume control.	Replace. Replace. Replace.


DIAG. # 1296
SCHEMATIC
FOR 16MM AMP.
USED ON MOD. 410 PANORAM.
MO-54 AMP.
RCA6J7
RCA6J5
RCA6N7
RCA6L6
RCA6L6
RCA6F6
RCA5Z3
P.E.C. RCA 921
BASS TONE CON.
HIGH TONE CON.
EXCITER LAMP SUPPLY 3.6 V. .75 AMP.
6.3 V. HEATERS
COIN OPERATED RELAY
120 V. A.C.
REMOVE JUMPER WHEN REMOTE CONTROL IS USED.
2500 Ω
3903 1. MFD
T-1 K-182107-1
T-2 K-182108-1
T-3 M-140552-2
T-4 K-180603-2
BY- H.W.P. 12-4-40
DIAG. # 1296

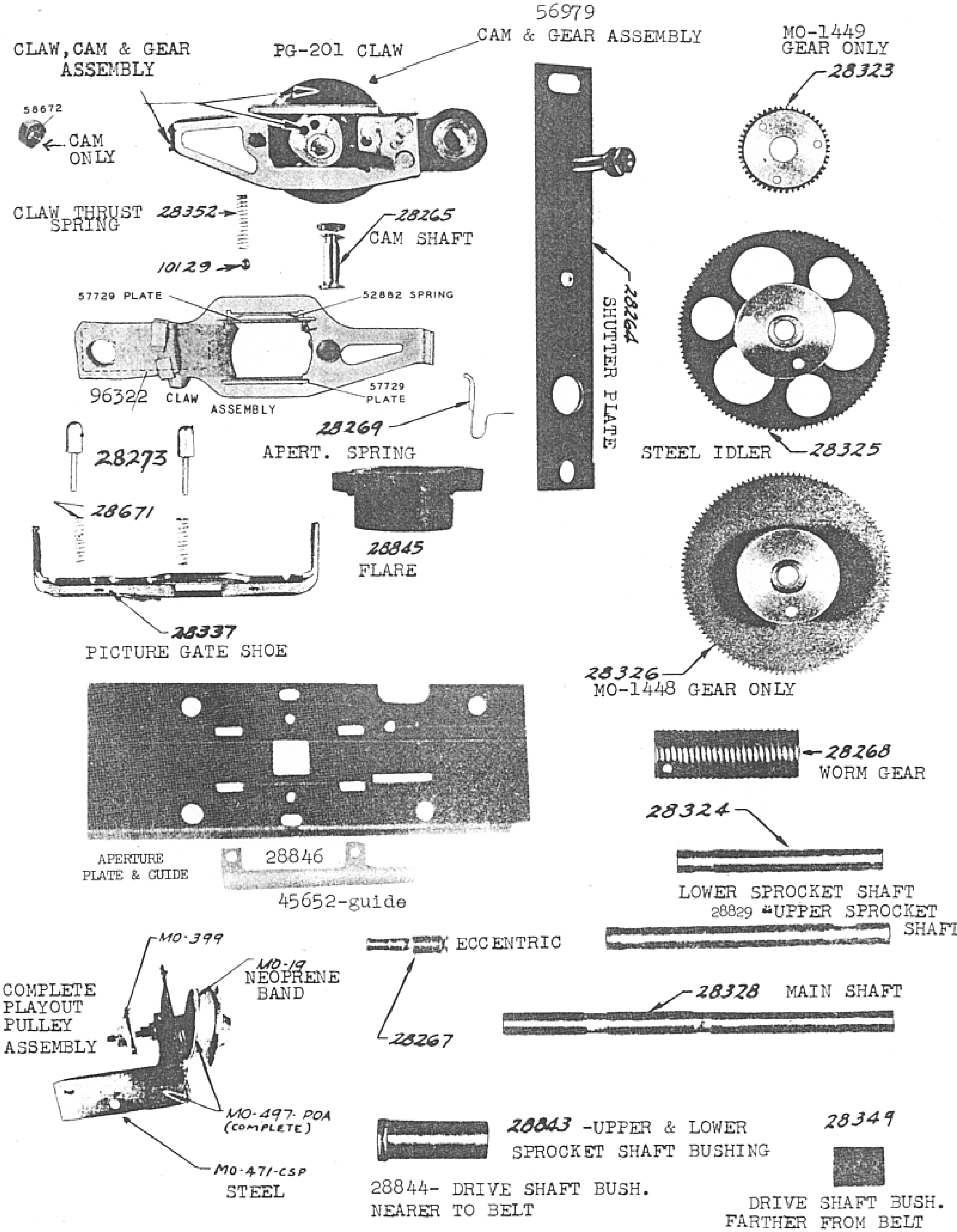

DIAGRAM-1290-A
PANORAM SOUNDIES
AMPLIFIER
MALE PLUG (REAR VIEW)
AMPLIFIER OUTLET
PROJECTOR PLUG (PRONG VIEW)
PHOTO ELEC CELL
EXCITER LAMP
PROJECTOR
SAFETY SWITCH
PROJECTOR LAMP AND SWITCH
CONTROL BOX
STEP UP MAGNET
STEP BACK MAGNET
RUNNING WINDING
STARTING WINDING
PROJECTOR MOTOR
CAPACITOR
SWITCH
LAMP RETARDING MAGNET
SPENCER THERMOSTAT
LOCKING RELAY
LOCKING SWITCH
SIGN LIGHTS
LIQUID CONTROL SWITCH
CLEANER MAGNET
VALVE MAGNET
FUSE BLOCK
MAIN RELAY
VOLT METER
ELECTRIC COUNTER
TEST SWITCH
WALL BOX ADAPTER RECEPTACLE (FRONT VIEW)
SERVICE LIGHT SOCKET
LINE SWITCH
TRANSFORMER
COIN CHUTE PLUG
SERVICE PLUG
SIGN DRIVE MOTOR COLOR CYLINDER MOTORS AND LIGHT SOCKETS
SIGN CONTROL OUTLETS
PROGRAM LIGHTS
ANTI TILT SWITCH
COIN CHUTE BLOCKING MAGNET AND COIN CONTACTS



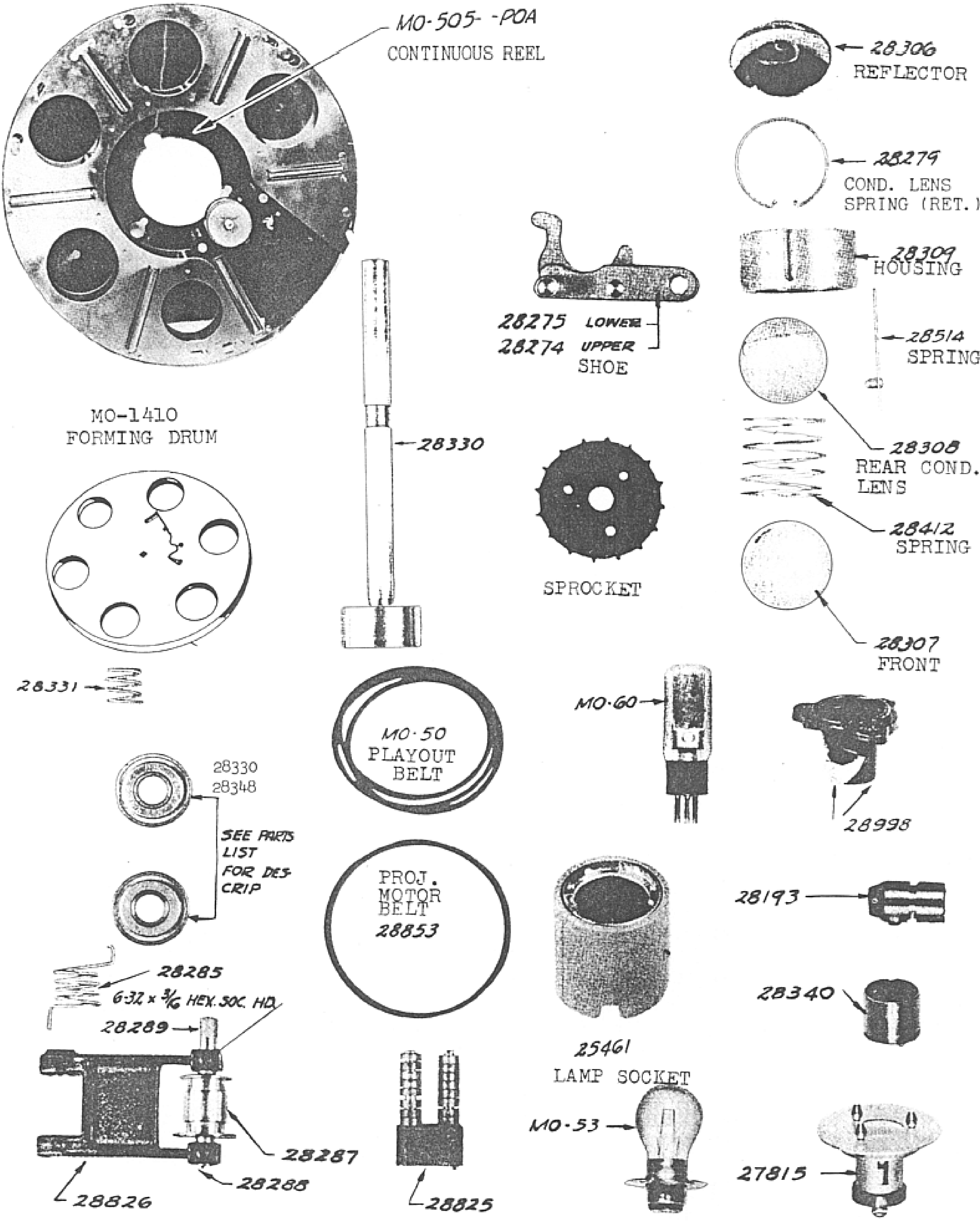
PROJECTOR MODELS MI-1340 - 1340A



30848
CONDENSER
MO-498-C5P
MICRO SWITCH
SHUTTER GEAR-28254
SHUTTER-ONLY 28261
COND. LENS-28308
REAR
COND. LENS-28309
FRONT
28270
OLD STYLE
APERTURE
PLATE
28845
FLARE
28256
FRAMING ARM
45767
CLAW
ASSEMBLY
28449
SWITCH
28863
PULLEY ONLY
LARGE DRIVER
28853 BELT
(MOTOR)
28313
BLOWER
28852
PULLEY



56979
CAM & GEAR ASSEMBLY
CLAW, CAM & GEAR ASSEMBLY
PG-201 CLAW
MO-1449 GEAR ONLY
28323
58672
CAM ONLY
CLAW THRUST SPRING 28352
28265
CAM SHAFT
10129
57729 PLATE
52882 SPRING
96322 CLAW ASSEMBLY
57729 PLATE
28264 SHUTTER PLATE
28269
APERT. SPRING
28273
28671
28845
FLARE
STEEL IDLER 28325
28337
PICTURE GATE SHOE
28326
MO-1448 GEAR ONLY
28268
WORM GEAR
APERTURE PLATE & GUIDE
28846
45652-guide
28324
LOWER SPROCKET SHAFT
28829 UPPER SPROCKET SHAFT
MO-399
MO-19
NEOPRENE BAND
COMPLETE PLAYOUT PULLEY ASSEMBLY
ECCENTRIC
28267
28328 MAIN SHAFT
MO-497-POA (COMPLETE)
MO-471-CSP
STEEL
28843 -UPPER & LOWER SPROCKET SHAFT BUSHING
28349
28844- DRIVE SHAFT BUSH. NEARER TO BELT
DRIVE SHAFT BUSH. FARTHER FROM BELT


MO-505- -POA
CONTINUOUS REEL
28306
REFLECTOR
28279
COND. LENS
SPRING (RET.)
28309
HOUSING
28514
SPRING
28275 LOWER
28274 UPPER
SHOE
MO-1410
FORMING DRUM
28330
28308
REAR COND.
LENS
28412
SPRING
SPROCKET
28307
FRONT
28331
MO-60
MO-50
PLAYOUT
BELT
28998
28330
28348
SEE PARTS
LIST
FOR DES-
CRIP
PROJ.
MOTOR
BELT
28853
28193
28285
6-32 x 3/16 HEX. SOC. HD.
28340
28289
25461
LAMP SOCKET
MO-53
28287
27815
28288
28826
28825

REPLACEMENT PARTS

MO-18	SCREEN
MO-19	RUBBER DRIVING RING (NEOPRENE BAND)
MO-41	MERCURY SWITCH (DURAKOOL)
MO-50	34 - 3/4 "V" BELT
MO-52	PROJECTION LENS COATED
MO-53	EXCITER LAMP
MO-60	PHOTO CELL
MO-68	PANORAM BOOSTER TRANSFORMER
MO-471	REEL BRACKET
MO-491	STOP SWITCH LEVER AND PLATE ASSEMBLY
MO-497	BALL BEARING PULLEY AND BRACKET ASSEMBLY (USED ONLY)
MO-500	MOVIE PROJECTOR ASSEMBLY - COMPLETE - (USED ONLY)
MO-505	REEL ASSEMBLY (USED ONLY)
MO-620	CLEANING PADS-PANORAM
MO-690	FILM CLEANING SOLUTION
MO-714	PROJECTOR OIL
25461	SOCKET (PROJECTOR LAMP)
27815	SOCKET (EXCITER LAMP)
28193	OPTICAL UNIT
28254	SHUTTER FIBER GEAR
28256	ARM (FRAMING)
28261	SHUTTER
28264	SHAFT AND PLATE (SHUTTER)
28268	WORM (MAIN DRIVE)
28269	SPRING (APERTURE SIDE PRESSURE)
28273	PLUNGER (PRESSURE SHOE)
28274	SHOE (UPPER SPROCKET)
28275	SHOE (LOWER SPROCKET)
28278	GEAR (78-TOOTH) FIBER
28279	RING (CONDENSER LENS RETAINING)
28285	SPRING (PRESSURE ROLLER BRACKET)
28287	ROLLER (PRESSURE ROLLER)
28306	REFLECTOR (PROJECTOR LAMP)
28307	FRONT CONDENSER LENS
28308	REAR CONDENSER LENS
28309	HOUSING (CONDENSER LENS)
28313	BLOWER (MOTOR)
28323	GEAR (48 TOOTH SPROCKET GEAR AND COLLAR)
28323	GEAR (48 TOOTH SPROCKET GEAR LESS COLLAR)
28324	SHAFT (LOWER SPROCKET)
28325	GEAR (113 TOOTH, L.H. STEEL IDLER GEAR)
28326	FIBER GEAR (113 TOOTH, WITH COLLAR)
28326	FIBER GEAR (113 TOOTH, LESS COLLAR)
28328	SHAFT (DRIVE SHAFT LESS WORM)
28330	DRUM AND SHAFT ASSEMBLY
28332	DRUM SHAFT BALL BEARING (.275" wide)
28337	PICTURE GATE SHOE
28340	PHOTO CELL SOCKET
28341	COVER (PHOTOTUBE)
28348	DRUM SHAFT BALL BEARING (.497" WIDE)

28349	BUSHING (DRIVE SHAFT FARTHER FROM BELT)
28352	SPRING (CLAW ASSEMBLY THRUST)
28395	SHAFT (PRESSURE ROLLER ARM)
28412	CONDENSER LENS SPRING
28671	SPRING (PICTURE GATE SHOE PLUNGER)
28826	ARM (PRESSURE ROLLER)
28827	SHIELD (EXCITER LAMP)
28828	BRACKET (OPTICAL)
28829	SHAFT (UPPER SPROCKET SHAFT)
28830	BRACKET (PHOTOTUBE)
28831	GATE (PICTURE GATE ONLY LESS ALL PARTS)
28843	BUSHING (SPROCKET SHAFT UPPER)
28844	BUSHING (DRIVE SHAFT BUSHING, NEARER BELT)
28845	SHIELD (APERTURE LIGHT SHIELD)
28849	PIPE (OIL)
28853	BELT (PROJECTOR DRIVE)
28855	CONNECTOR (3 CONTACT, PHOTO CELL)
28856	PROJECTOR MOTOR
28859	CAPACITOR (FOR PROJECTOR MOTOR) (75-87 MFD.)
28861	CONNECTOR (4 CONTACT ON EXCITER LAMP LEAD)
28863	PULLEY (LARGE DRIVER)
28998	MIRROR AND BRACKET
96322RCA	CLAW, CAM AND GEAR ASSEMBLY (NEW TYPE) (COMPLETE)

WRITE FOR ITEMS NOT LISTED

(ALL RCA 400 PARTS AVAILABLE)

ALSO PARTS FOR THE MODEL 474 SONO-VISION CABINET PROJECTION

KIMBALL 6-2358

LAKES PANORAM SERVICE & PARTS CO.

1905 N. WABASH AVE.

ROUND LAKE, ILL.

PANORAM PROJECTOR REPAIRING

SONO VISION SERVICE